

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR00/00101	International filing date (day/month/year) 19 January 2000 (19.01.00)	Priority date (day/month/year) 19 January 1999 (19.01.99)
International Patent Classification (IPC) or national classification and IPC B01D 53/81		
Applicant	ROUX, Claude	

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 9 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 18 August 2000 (18.08.00)	Date of completion of this report 25 April 2001 (25.04.2001)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

I. Basis of the report

1. With regard to the elements of the international application:*

 the international application as originally filed the description:

pages 1,3,5,7-9, as originally filed

pages _____, filed with the demand

pages 2,4,6,10, filed with the letter of 25 January 2001 (25.01.2001)

 the claims:

pages _____, as originally filed

pages _____, as amended (together with any statement under Article 19

pages _____, filed with the demand

pages 1-8, filed with the letter of 25 January 2001 (25.01.2001)

 the drawings:

pages 2/4,3/4, as originally filed

pages _____, filed with the demand

pages 1/4,4/4, filed with the letter of 25 January 2001 (25.01.2001)

 the sequence listing part of the description:

pages _____, as originally filed

pages _____, filed with the demand

pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

 the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. The amendments have resulted in the cancellation of: the description, pages _____ the claims, Nos. _____ the drawings, sheets/fig _____5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-4, 7, 8	YES
	Claims		NO
Inventive step (IS)	Claims	1-4, 7, 8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-4, 7, 8	YES
	Claims		NO

2. Citations and explanations

1. Reference is made to the following documents:

D1: WO 92 14042 A
 D2: FR-A-2 702 004
 D3: DE 14 76 627 A
 D4: GB-A-1 396 607
 D5: WO 90 04707 A
 D6: WO 98 37944 A
 D7: US-A-4 578 091

2. Documents D2 to D5 all relate to the problem of sound damping and/or pollutant oxidation by means of electrical resistors. Said documents do not mention spheres constituting the exchange surface for pollutant oxidation.

3. The operation of the system as per D6 differs from that of the system of the application in that there is no thermal destruction ("pyrolysis") of the pollutants; instead there is a step of pollutant coagulation followed by a filtration step. Coagulation is carried out by means of spheres in

the reaction chamber (see column 3, lines 6-16).

Said document does not mention the presence of projections on the spheres.

4. Documents D1 and D7 both describe systems as per the preamble of Claim 1 for neutralising pollutants in the discharged gas. Moreover, the system as per D1 includes spheres in order to enlarge the exchange surface (see D1: page 10, line 21).

Document D1 is therefore considered to be the closest prior art. The subject matter of Claim 1 as per the application differs from the system described in D1 in that the spheres comprise a plurality of diamond-point projections on the entire surface thereof.

As a result, the subject matter of independent Claim 1 as well as that of the claims dependent thereon is novel over the available prior art (PCT Article 33(2)).

5. The technical problem solved by the subject matter of Claim 1 is that of enlarging the exchange surface while nonetheless preventing a large pressure drop (cf. page 2, lines 30-31). The problem is solved by virtue of the fact that the spheres comprise diamond-point projections.

Document D5 describes a pollutant neutralisation system including a channel (2), the surfaces of which are provided with diamond-like projections ("pyramidenförmig", page 6, last paragraph). In document D5, these projections act as a rebound surface. However, in the subject matter of Claim 1,

the spheres alone already represent a maximum rebound surface and the projections are used to enlarge the exchange surface. It follows that it is impossible to assert that the available prior art suggests the combination of the system known from document D1 with the features known from document D5, which combination leads to the invention (PCT Article 33(3)).

6. The applicant has not indicated any passages of the description that can be used as a basis for the amendments to Claims 5 and 6. Moreover, the examiner has not been able to find any such passages. Said amendments are therefore considered to extend the subject matter of the application beyond the content of the application as filed. As a result, said amendments are contrary to the provisions of PCT Article 34(2)(b). The amendments in question are as follows:

- "... are stamped out of a metal sheet having a thickness of approximately 0.5 mm, in the form of two half-portions that are later welded together" (dependent Claim 5)
- "... providing the pyrolysis temperature, characterised in that said electrical resistors are wound into flat spirals and are each provided on a supporting disk made of an insulating material ..." (independent Claim 6)

It follows that the subject matter of Claims 5 and 6 has not been examined with respect to

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novelty and inventive step.

Moreover, an independent claim relating to a system including wound electrical resistors is not considered to be novel or inventive in light of the available prior art (see, for example, D2 and D4).

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

In view of the fact that a system comprising spheres is already known from document D1, this feature should be in the preamble of Claim 1. Only the feature relating to diamond-point projections should be in the characterising portion (PCT Rule 6.3(b)).

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. The expression "very large" (see, for example, Claim 1) is vague and renders the subject matter for which protection is sought unclear (see PCT Guidelines, III-4.5).
2. The description comprises embodiments (cf. page 7, line 15 to page 9, line 10 and page 10, lines 4-11) which are illustrated in Figures 5-13, 16 and 17 but are not covered by the claims. This lack of consistency between the claims and the description casts doubt on the subject matter for which protection is sought and renders the claims unclear (PCT Article 6).